Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-55: CANCELED

56. (original) A switch for routing data packets between a plurality of switch inputs and a plurality of switch outputs, said switch comprising:

a) a plurality of first level SPP mappers for determining a corresponding first level SPP for each data packet and attaching said determined first level SPP thereto;

b) a plurality of first level packet formatters for queuing together data packets sharing a common corresponding first level SPP, creating first level train packets from the commonly-queued data packets, wherein each first level train packet comprises a payload and a header, wherein the payload of at least one first level train packet includes a plurality of commonly-queued data packets, and wherein the header of each first level train packet includes the common first level SPP corresponding to each data packet included in the payload of that first level train packet;

c) a plurality of second level SPP mappers for determining a corresponding second level SPP for each first level train packet and attaching said determined second level SPP thereto;

d) a plurality of second level packet formatters for queuing together first level train packets sharing a common corresponding second level SPP, creating second level train packets

from the commonly-queued data packets, wherein each second level train packet comprises a payload and a header, wherein the payload of at least one second level train packet includes a plurality of commonly-queued first level train packets, and wherein the header of each second level train packet includes the common second level SPP corresponding to each first level train packet included in the payload of that second level train packet;

e) a plurality of multiplexors, each multiplexor linking a plurality of first level packet formatters to a second level packet formatter;

f) a switch fabric having a plurality of switch fabric inputs for receiving second level train packets from the second level packet formatters and a plurality of switch fabric outputs for outputting routed second level train packets, wherein the switch fabric is configured to route each received second level train packet to a switch fabric output according to the second level SPP included in the header of each second level train packet;

g) a plurality of second level packet deformatters for receiving routed second level train packets outputted from the switch fabric, extracting first level train packets from the payloads of the received routed second level train packets, and outputting the extracted first level train packets;

h) a plurality of first level packet deformatters for receiving extracted first level train packets outputted from the second level packet deformatters, extracting data packets from the payloads of the received extracted first level train packets, and outputting the extracted data packets; and

i) a plurality of demultiplexors, each demultiplexor linking a second level packet deformatter with a plurality of first level packet deformatters.

57. (original) A switch for routing data packets between a plurality of switch inputs and a plurality of switch outputs, said switch comprising:

a) a plurality of first level SPP mappers for determining a corresponding first level SPP for each data packet and attaching said determined first level SPP thereto;

b) a plurality of first level packet formatters for queuing together data packets sharing a common corresponding first level SPP, creating first level train packets from the commonly-queued data packets, wherein each first level train packet comprises a payload and a header, wherein the payload of at least one first level train packet includes a plurality of commonly-queued data packets, and wherein the header of each first level train packet includes the common first level SPP corresponding to each data packet included in the payload of that first level train packet;

c) a plurality of second level SPP mappers for determining a corresponding second level SPP for each first level train packet and attaching said determined second level SPP thereto;

d) a plurality of second level packet formatters, each of said second level packet formatters configured to (1) queue first level train packets according to their corresponding second level SPPs such that first level train packets sharing a common corresponding second level SPP are commonly-queued, (2) create subtrain packet sets from the commonly-queued first level train packets, each subtrain packet set comprising a plurality N of subtrain packets, each subtrain packet comprising a subtrain payload and a subtrain header, wherein the subtrain payloads of the subtrain packets in at least one subtrain packet set encapsulate a plurality of commonly-queued first level train packets in the aggregate, and wherein the subtrain header of each subtrain packet in each subtrain packet set includes the second level

SPP shared by each first level train packet encapsulated in the aggregated subtrain payload of that subtrain packet set, and (3) for each subtrain packet set, outputting the subtrain packets included in that subtrain packet set in parallel;

e) a plurality of multiplexors, each multiplexor linking a plurality of first level packet formatters to a second level packet formatter;

f) a switch fabric for routing subtrain packet sets received from the second level packet formatters, said switch fabric comprising a plurality N of switch planes, each switch plane having a plurality of switch plane inputs for receiving subtrain packets from the second level packet formatters and a plurality of switch plane outputs for outputting subtrain packets, wherein each switch plane is configured to (1) receive a subtrain packet from each subtrain packet set, and (2) route each received subtrain packet to a switch plane output according to the second level SPP included in its subtrain header; and

g) a plurality of second level packet deformatters, each second level packet deformatter configured to (1) receive routed subtrain packet sets from the switch fabric, (2) extract from the received subtrain packet sets the first level train packets encapsulated therein, and (3) output each extracted first level train packet;

h) a plurality of first level packet deformatters for receiving extracted first level train packets outputted from the second level packet deformatters, extracting data packets from the payloads of the received extracted first level train packets, and outputting the extracted data packets; and

i) a plurality of demultiplexors, each demultiplexor linking a second level packet deformatter with a plurality of first level packet deformatters.

Claims 58-78: CANCELED

79. (currently amended) The packet switch of claim ~~78~~ 83 wherein each train packet has a payload portion, at least a plurality of the payload portions of the train packets encapsulating both at least one data packet payload portion and at least one data packet header portion.

80. CANCELED.

81. CANCELED.

82. CANCELED.

83. (currently amended) A ~~The~~ packet switch ~~of claim 78~~ for processing a plurality of data packets, each data packet comprising a payload portion and a header portion, each data packet having a switch processing parameter (SPP) associated therewith, the packet switch comprising:

a plurality of packet formatters within the packet switch; and

a switch fabric within the packet switch, the switch fabric in communication with the packet formatters;

wherein the switch fabric comprises a plurality of switch fabric input ports and a plurality of switch fabric output ports;

wherein the packet formatters are configured perform sequential train packet processing on a plurality of received data packets and their associated SPPs to thereby generate a plurality of train packets for receipt by the switch fabric input ports, each generated train packet having an associated SPP; and

wherein the switch fabric is configured to receive the generated train packets and switch each received generated train packet from a switch fabric input port to a switch fabric output port according to its associated SPP; and

wherein each packet formatter comprises a plurality of buffers for queuing data packets according to their associated SPPs such that any data packet that is queued in a buffer shares a

common associated SPP with each other data packet that is also queued in that buffer, and wherein the packet formatter is further configured to maintain a plurality of parameters that govern train packet ~~creation~~ generation from any data packets that are queued in the buffers, the plurality of parameters comprising a maximum train packet length, a minimum train packet length, a maximum amount of time that a data packet may be queued in a buffer for a train packet that is created from that buffer, and a minimum amount of time that a data packet will be queued in a buffer before the packet formatter creates a train packet having padding, wherein the maximum amount of time is greater than the minimum amount of time.

84. (previously presented) The packet switch of claim 83 wherein the parameters are defined for each buffer independently of the other buffers.

85. (previously presented) The packet switch of claim 83 wherein at least one packet formatter is further configured to, if a queual of an arriving data packet in a buffer, the buffer having a content of at least one data packet that is already queued therein, would cause an aggregate length of data packets queued in that buffer to exceed that buffer's maximum train packet length, create a train packet from that buffer's content but not the arriving data packet, wherein the created train packet includes padding if an aggregate length of the buffer's content does not equal or exceed that buffer's minimum train packet length, and wherein the at least one packet formatter is further configured to queue the arriving train packet in a buffer for a subsequent transformation into a train packet.

86. (previously presented) The packet switch of claim 83 wherein at least one packet formatter is further configured to, if a queuing of an arriving data packet in a buffer, the buffer having a content of at least one data packet that is already queued therein, would cause an aggregate length of data packets queued in that buffer to exceed that buffer's maximum train packet length, create a train packet from that buffer's content and a portion of the arriving packet sufficient to cause the created train packet to have a length equal to the maximum train packet length, and wherein the at least one packet formatter is further configured to queue a

remainder portion of the arriving train packet in a buffer for a subsequent transformation into a train packet.

87. (currently amended) The packet switch of claim ~~78~~ 83 further comprising a plurality of SPP mappers in communication with the packet formatters, each SPP mapper being configured to determine the SPP associated with each data packet, each SPP comprising an identification of a switch fabric output port.

88. (previously presented) The packet switch of claim 87 wherein each SPP further comprises a priority for its associated data packet.